

Graphite structure: So how graphite structure works?

I found at Chat GPT that those structure are cristals formed by layers of carbon atoms arranged in a hexagonal arrangement, similar to honey combs. It is said that this layers are held together by weak van der waals forces, which allow them to slide over one another easily.

"The nanopores are constructed by **sinusoidally corrugating** the graphite **slit** pore walls".(Cui et al., 2024)

In this context, my doubt surrounds the understanding of some concepts like sinusoidally, corrugating and slit.

Slit refers to a cut in a surface, or something that has the shape of a cut. Furthermore sinusoidally refers to something that has the shape of a sine wave. So if someone says that something is moving sinusoidally or is disposed in this manner it also say that it has a sinusoidally shape.

To confirm it I had another talk with the robot and he has assured me what I have mentioned above:

Me: Corrugating the graphite slit pore walls". It is hard for me to understand this arrangement. It is saying that the graphene layers are arranged in a sinusoidally manner like a wave and the gap between two layers are called the slit? And this slit is also a pore and the walls of the pore are the internal part of the layer?

- 1. Graphite Structure:** Graphite is composed of multiple layers of graphene, where each layer is a flat sheet of carbon atoms arranged in a hexagonal pattern. The layers are separated by weak van der Waals forces.
- 2. Slit Pore Walls:** The term "slit" refers to the narrow openings or gaps that are formed between these layers. In this context, the "walls" of the slit pore are the surfaces of the graphene layers themselves.
- 3. Corrugating:** When the article mentions "corrugating the graphite slit pore walls," it means that the surfaces of the graphene layers are shaped in a sinusoidal (wave-like) manner. This corrugation creates a series of undulations, rather than a flat surface, affecting the pore's geometry.
- 4. Pores:** The term "pore" indicates that there are openings (or slits) formed between these corrugated layers. So, in essence, the gap

created by the corrugated structure acts as a pore through which molecules can be adsorbed or flow.